UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
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FEB 04 2019

Mr. Thomas Frick
Director
Division of Environmental Assessment & Restoration
Florida Department of Environmental Protection
Mail Station 3000
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Dear Mr. Frick:

The U.S. Environmental Protection Agency has completed its review of the document titled *Nutrient TMDLs for Lake Ariana (WBID[1] 1501B) and Eagle Lake (WBID 1623M).* The Florida Department of Environmental Protection (FDEP) submitted the Lake Ariana and Eagle Lake Total Maximum Daily Load (TMDL) and revised Chapter 62-304, Florida Administrative Code (F.A.C.),[2] including the numeric nutrient criteria (NNC) for the subject waters, in a letter to the EPA dated October 9, 2018, as TMDLs and new or revised water quality standards (WQS) with the necessary supporting documentation and certification by FDEP General Counsel, pursuant to Title 40 of the Code of Federal Regulations part 131.

The NNC were adopted under Chapter 62-304.625(23)-(24) as site specific numeric interpretations of paragraph 62-302.530(48)(b). As referenced in paragraph 62-302.531(2)(a), the FDEP intends for the submitted NNC to serve in place of the otherwise applicable criteria for lakes set out in paragraph 62-302.531(2)(b). The total nitrogen (TN) and total phosphorus (TP) TMDLs for Lake Ariana and Eagle Lake would also constitute a site specific numeric interpretation of the narrative nutrient criterion set forth in paragraph 62-302.530(48)(b), for these water segments.

The FDEP submitted the Lake Ariana and Eagle Lake TMDLs to the EPA for review pursuant to both Clean Water Act (CWA) sections 303(c) and 303(d) since the TMDLs will also act as a Hierarchy 1 (H1) site-specific interpretation of the state's narrative nutrient criterion pursuant to 62-302.531(2)(a)1.a. The EPA acknowledges that by virtue of establishing the TMDLs in Chapter 62-304, the FDEP is also establishing an H1 interpretation of the narrative nutrient criteria for these waterbodies as new or revised WQS. The enclosed, combined WQS and TMDL decision document summarizes the EPA's review and approval of the WQS and TMDLs.

[1] WBID refers to waterbody identification
[2] Unless otherwise stated, all rule and subsection citations are to provisions in the Florida Administrative Code.

In accordance with sections 303(c) and (d) of the CWA, I am hereby approving the TMDLs promulgated in Chapter 62-304 for Lake Ariana and Eagle Lake as both TMDLs and as revised WQS for TN and TP. Any other criteria applicable to these waterbodies remain in effect, especially those related to chlorophyll *a* and in paragraph 62-302.531(2)(b). The requirements of paragraph 62-302.530(48)(a) also remain applicable. The TMDL for Lake Ariana (WBID 1501B) supersedes the existing Lake Ariana North (WBID 1501B) nutrients TMDL which was established by the EPA on August 23rd, 2010.

If you have any comments or questions relating to the approval of the H1 WQS or TMDLs, please contact me at (404) 562-9345, or have a member of your staff contact Dr. Katherine Snyder in the WQS program at (404) 562-9840 or Ms. Laila Hudda of the TMDL program at (404) 562-9007.

Sincerely,

Jeaneanne M. Gettle
Director
Water Protection Division

Enclosure

cc: Mr. Kenneth Hayman, FDEP
Mr. Daryll Joyner, FDEP
Ms. Erin Rasnake, FDEP

Florida Numeric Interpretation of the Narrative Nutrient Water Quality Criterion Through Total Maximum Daily Loads (TMDLs) to Establish a Hierarchy 1 (H1): Joint Water Quality Standards (WQS) and TMDL Decision Document

H1: Nutrient TMDL for Lake Ariana (**waterbody identification** (WBID) 1501B) and Eagle Lake (WBID 1623M)

ATTAINS TMDL ID: FL68606

Location: Polk County, Florida

Status: Final

Criteria Parameter(s): The Lake Ariana (WBID 1501B) criteria for total nitrogen (TN) is 0.97 mg/L and total phosphorus (TP) is 0.03 mg/L, both expressed as an annual geometric mean (AGM) not to be exceeded in any year. The TMDL allocation for WBID 1501B is expressed as a percent reduction of 36% for TN and 0% for TP.

The Eagle Lake (WBID 1623M) criteria for TN is 0.63 mg/L and TP is 0.01 mg/L, both expressed as an AGM not to he exceeded in any year. The TMDL allocation for WBID 1623M is expressed as a percent reduction of 38% for TN and 50% for TP.

Impairment/Pollutant: Two waterbodies (see next page) in the Peace River Basin are not meeting water quality criteria for nutrients and not supporting the designated uses of Class III Freshwater (fish consumption; recreation; and propagation and maintenance of a healthy, well-balanced population of fish and wildlife). An H1 was submitted by the Florida Department of Environmental Protection (FDEP) that establishes site-specific criteria for TN and TP and provides loads to address the impairment.

Background: The FDEP submitted the final H1 for the *Nutrient TMDLs for Lake Ariana (WBID 1501B), and Eagle Lake (WBID 1623M)* (the "report") by letter dated October 9, 2018. The draft report for Lake Ariana and Eagle Lake is dated January 2018 and was received February 7, 2018. The final Lake Ariana and Eagle Lake report dated August 2018 includes H1 site-specific concentrations and percent reductions. A final report was received on October 17, 2018.

The submission included:

- Submittal letter
- Nutrient TMDLs for Lake Ariana (WBID 1501B), and Eagle Lake (WBID 1623M) and Documentation in Support of the Development of Site-Specific Numeric Interpretations of the Narrative Nutrient Criterion
- Documents related to Public Workshop
- Documents related to Public Hearing
- Documents related to Public Notice for Rulemaking and Rule Adoption
- Public Comments Received and Response

This document explains how the submission meets the Clean Water Act (CWA) statutory requirements for the approval of WQS under section 303(c) and of TMDLs under section 303(d), and the EPA's

implementing regulations in Title 40 of the Code of Federal Regulations (40 CFR) parts 131 and 130, respectively.

REVIEWERS: WQS: Katherine Snyder, WQS Coordinator, Snyder.katherine@epa.gov
TMDL: Margaret Stebbins, ALTS Coordinator, Stebbins.Margaret@epa.gov

Waterbodies addressed in this H1 Approval Action:

Lake Ariana	**WBID 1501B**	**1,030 acres**
Eagle Lake	**WBID 1623M**	**647 acres**

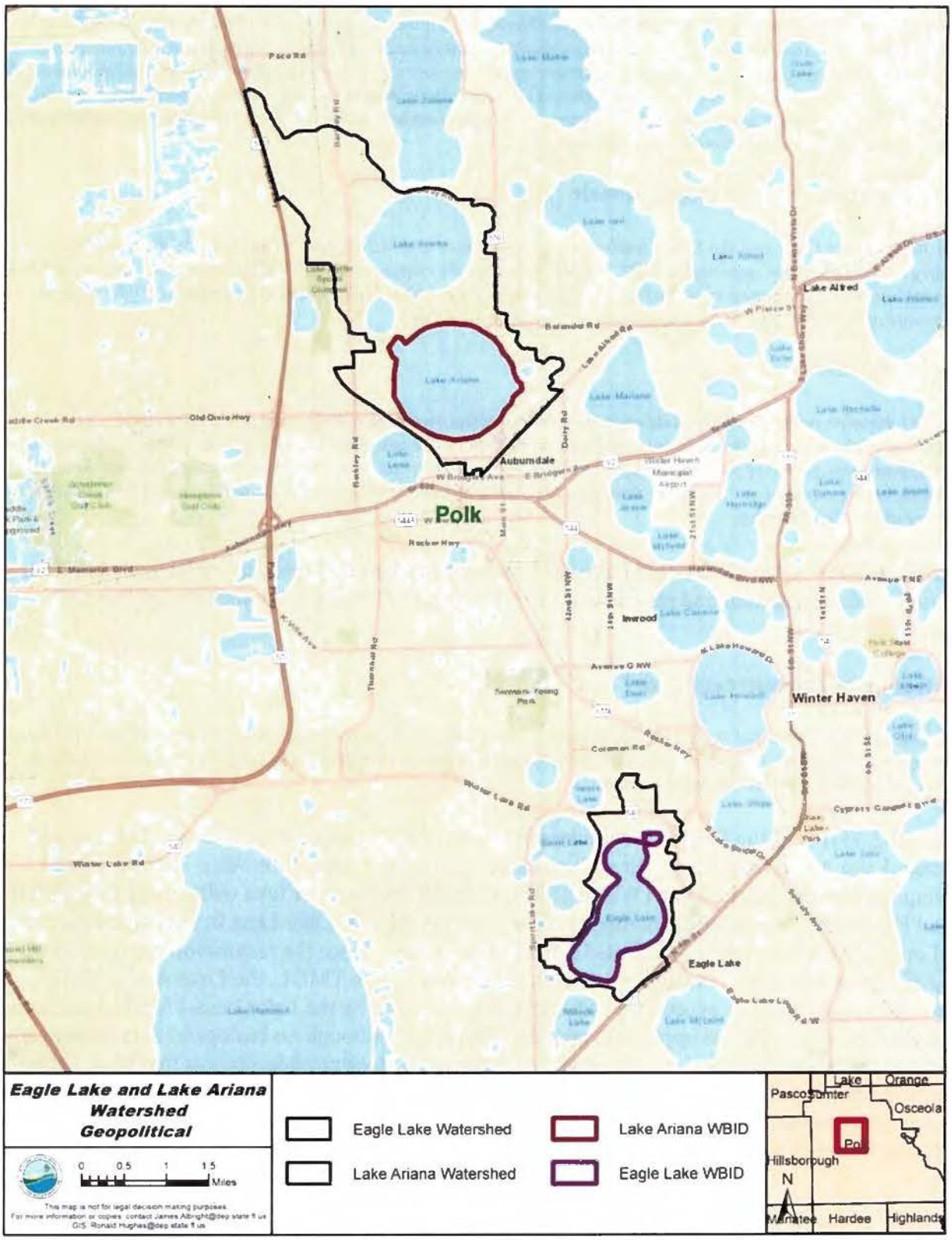

Figure 1. Watersheds of Lake Ariana (WBID 1501B) and Eagle Lake (WBID 1623M) in the Upper Peace River Basin.

This document contains the EPA's review of the above-referenced H1. This review document includes WQS and TMDL review guidelines that state or summarize currently effective statutory and regulatory requirements applicable to this approval action. Review guidelines are not themselves regulations. Any differences between review guidelines and the EPA's implementing regulations should be resolved in favor of the regulations themselves. The italicized sections of this document describe the EPA's statutory and regulatory requirements for approvable H1s. The sections in regular type reflect the EPA's analysis of the state's compliance with these requirements.

I. WQS Decision – Supporting Rationale

Section 303(c) of the CWA and the EPA's implementing regulations at 40 CFR section 131 describe the statutory and regulatory requirements for approvable WQS. Set out below are the requirements for WQS submissions, under the CWA and the regulations. The information identified below is necessary for the EPA to determine if a submitted WQS meets the requirements of the CWA and, therefore, may be approved by the EPA.

1. Use Designations

Section 131.10(a) provides that each state must specify appropriate water uses to be achieved and protected. The classification of the waters of the state must take into consideration the use and value of water for public water supplies, protection and propagation of fish, shellfish and wildlife, recreation in and on the water, agricultural, industrial, and other purposes including navigation. In no case shall a state adopt waste transport or waste assimilation as a designated use for any waters of the United States.

Assessment: Lake Ariana and Eagle Lake are classified as Class III Freshwater (fish consumption; recreation; and propagation and maintenance of a healthy, well-balanced population of fish and wildlife).

2. Protection of Downstream Uses

Section 131.10(b) provides that in designating uses of a waterbody and the appropriate criteria for those uses, the state shall take into consideration the WQS of downstream waters and shall ensure that its WQS provide for the attainment and maintenance of the WQS of downstream waters.

Rule 62-302.531(4) of the Florida Administrative Code (F.A.C.) requires that downstream uses be protected. Lake Ariana discharges through an outlet on the south side of the lake. The immediate receiving waterbody is Lake Lena (WBID 1501), a Class III freshwater lake with an existing TMDL and adopted Hierarchy 1 site-specific numeric nutrient criteria (NNC). Lake Lena in turn discharges into Lake Lena Run (WBID 1501A), a Class III freshwater stream. Since the restoration concentrations for Lake Ariana are lower than the nutrient targets for the Lake Lena TMDL, the Lake Ariana TMDL nutrient reductions meet or exceed the reduction goals set forth by the Lake Lena TMDL. Lake Lena Run did not exceed any of its applicable nutrient criteria and although no biological data were available at the time of the assessment, a stream condition index of 44 does provide support that Lake Lena Run is currently supporting a healthy community of benthic macroinvertebrates under current conditions, and upstream improvements should continue to support the existing in-stream biological community. Thus, the TN and TP loads coming from Lake Ariana are protective of the nutrient conditions in downstream waters.

Eagle Lake discharges to Eagle Lake Outlet (WBID 1623N), a Class III freshwater stream, and to Millsite Lake (WBID 1623M2), a Class III freshwater lake. During the most recent assessment period for the Group 3 basins (Cycle 3), no data were available to assess either Millsite Lake or Eagle Lake Outlet for any parameter. The site-specific criteria for TN and TP in Eagle Lake are stricter than those

applicable to Eagle Lake Outlet and Millsite Lake (page 33 of the report), so the site-specific targets are protective of the waters located downstream.

Lake Ariana and Eagle Lake ultimately contribute to Lake Hancock, the receiving body for the entire drainage area. On the most recent Cycle 3 assessment performed in 2016, Lake Hancock exceeded the chlorophyll *a* (Chl*a*), TN, and TP criteria more than once in a 3-year period resulting in impairments for these nutrient parameters. Any improvements upstream in the larger Lake Hancock Basin will potentially improve the conditions in Lake Hancock. The new criteria being set for Lake Ariana and Eagle Lake are lower than the existing criteria for Lake Hancock. Therefore, the new criteria are protective of the nutrient conditions in Lake Hancock.

Assessment: The H1 is providing use protection for the downstream waters.

3. Water Quality Criteria

Section 131.11(a) provides that states must adopt those water quality criteria that protect the designated use. Such criteria must be based on sound scientific rationale and must contain sufficient parameters or constituents to protect the designated use. For waters with multiple use designations, the criteria shall support the most sensitive use.

As a low-color, high-alkalinity lake, a Chl*a* target of 20 µg/L will apply to Lake Ariana. Eagle Lake is a low-color, low-alkalinity lake and will have a Chl*a* target of 6 µg/L. Long-term datasets of color, alkalinity, and nutrients in these lakes suggest that they do not differ from the population of lakes used in the development of the NNC, and therefore the FDEP has determined that the generally applicable NNC are the most appropriate site-specific Chl*a* criteria. These Chl*a* values serve as the basis for determining the site-specific TN and TP criteria.

The TN concentrations identified as the site-specific TN criterion were determined using the regression approach to achieve the applicable Chl*a* criteria (20 µg/L for Lake Ariana and 6 µg/L for Eagle Lake), expressed as an AGM not to be exceeded more than once in any consecutive 3-year period. Lake Ariana was impaired for TN only; thus, the regression equation expressed the relationship between Chl*a* and TN. The resulting TN criteria of 0.97 mg/L for Lake Ariana expressed as an AGM lake concentration, not to be exceeded in any year. As a conservative measure, the TP concentrations for the site-specific TP criterion (0.03 mg/L) was established as the minimum value from the generally applicable NNC for the lake type. This TP criterion will be established as never to be exceeded.

Because Eagle Lake was impaired for both TN and TP, a multiple regression equation for the relationship between Chl*a*, TN, and TP was determined. There are no in-lake data available to suggest that an alternative TP criterion should be selected for Eagle Lake. As a conservative measure, the TP concentrations for the site-specific TP criterion was established as the minimum value from the generally applicable NNC for the lake type. This TP criterion will be established as never to be exceeded. By using the applicable Chl*a* criterion of 6 µg/L and the selected site-specific value of 0.01 mg/L TP, the multiple regression equation establishes a TN criterion of 0.63 mg/L for Eagle Lake. This TN criterion is established as never to be exceeded.

Assessment: The Lake Ariana (WBID 1501B) site-specific criteria for TN is 0.97 mg/L and TP is 0.03 mg/L, both expressed as an AGM not to be exceeded in any year.

The Eagle Lake (WBID 1623M) site-specific criteria for TN is 0.63 mg/L and TP is 0.01 mg/L, both expressed as an AGM not to be exceeded in any year.

The resulting water quality will protect the designated uses for this waterbody. Any other criteria applicable to this waterbody remain in effect, including the nutrient criteria for parameters set out in 62-302.531(2)(b) F.A.C.

4. Scientific Defensibility

Section 131.11(b) provides that, in establishing criteria, states should establish numerical values based on 304(a) guidance, 304(a) guidance modified to reflect site-specific conditions, or other scientifically defensible methods.

The FDEP used the Trophic Status Index (TSI) to determine that Eagle Lake was impaired for nutrients for the verified period of Group 3, Cycle 1 and Lake Ariana was also identified in Cycle 2. The subsequent assessment in 2016 (Group 3, Cycle 3) indicated that the NNC were also not being met for TN and Chl*a* in both lakes and for TP in Eagle Lake. To establish the nutrient targets for Lake Ariana and Eagle Lake, the FDEP used the generally applicable 20 µg/L Chl*a* and 6 µg/L Chl*a*, respectively, as a target because this level is considered protective of the designated use of these lakes. See 62-302.531(2)(b), F.A.C. Long term datasets from Lake Ariana and Eagle Lake suggest that they do not differ from the population of lakes used in the development of the NNC. The site-specific criteria for each lake were derived from regression approaches and expressed as AGMs not to be exceeded in any year. The resulting water quality is expected to protect the designated uses for this waterbody.

Assessment: The EPA determined that the selection of a Chl*a* value of 20 µg/L for Lake Ariana and 6 µg/L Chl*a* for Eagle Lake as the response variable target is appropriate and the technical approach to calculate the target TN and TP concentrations is scientifically sound. The approaches are described in the cited report.

5. Public Participation

Section 131.20(b) provides that states shall hold a public hearing when revising WQS, in accordance with provisions of state law and the EPA's public participation regulation (40 CFR part 25). The proposed WQS revision and supporting analyses shall be made available to the public prior to the hearing.

A public workshop was conducted by the FDEP on March 6, 2018, in Bartow, Florida, to obtain comments on the draft nutrient TMDLs for Lake Ariana and Eagle Lake. The workshop notice indicated that the nutrient TMDLs, if adopted, constitute site-specific numeric interpretations of the narrative criterion set forth in paragraph 62-302.530(48)(b), F.A.C., that would replace the otherwise applicable NNC in subsection 62-302.531(2), F.A.C., for these waters. The FDEP also held a public hearing on June 29, 2018, in Tallahassee, Florida.

Assessment: The FDEP has met the public participation requirements for this H1.

6. Certification by the State Attorney General

Section 131.6(e) requires that the state provide a certification by the state Attorney General or other appropriate legal authority within the state that the WQS were duly adopted pursuant to state law.

A letter from the FDEP General Counsel, Robert A. Williams, dated October 9, 2018, certified that the Lake Ariana and Eagle Lake TMDLs were duly adopted as WQS pursuant to state law.

Assessment: The FDEP has met the requirement for Attorney General certification for this H1.

7. Endangered Species Act Section 7 Consultation

Section 7(a)(2) of the Endangered Species Act (ESA) requires federal agencies, in consultation with the Services, to ensure that their actions are not likely to jeopardize the continued existence of federally listed species or result in the destruction or adverse modification of designated critical habitat of such species.

The existing default numeric nutrient criteria for the waterbody received concurrence by U.S. Fish and Wildlife Service (USFWS) on July 31, 2013. Because the site-specific criteria for TN in Eagle Lake and TP for Lake Ariana and Eagle Lake in this report are within the default criteria, an additional ESA section 7 consultation for this standards action is not required.

USFWS provided concurrence with the EPA's programmatic consultation on site-specific nutrient criteria for the FDEP on July 21, 2015, for any site-specific nutrient criteria that are more stringent than the existing default nutrient criteria in place in the state of Florida for the waterbody. Because the site-specific criteria in this report for TN in Lake Ariana are more stringent than the default criteria, an additional ESA section 7 consultation for this standards action is not required.

Assessment: The EPA has met the ESA requirements for this action.

II. TMDL Review

Section 303(d) of the CWA and the EPA's implementing regulations at 40 CFR Part 130 set out the statutory and regulatory requirements for an approvable TMDL. The following information is generally necessary for the EPA to determine if a submitted TMDL fulfills the legal requirements for approval under section 303(d) and the EPA regulations and should be included in the submittal package. Use of the verb "must" below denotes information that is required to be submitted because it relates to elements of the TMDL required by the CWA and by regulation.

1. Description of Waterbody, Pollutant of Concern, and Pollutant Sources

The TMDL analytical document must identify the waterbody as it appears on the state's 303(d) list, including the pollutant of concern. The TMDL submittal must include a description of the point and nonpoint sources of the pollutant of concern, including the magnitude and location of the sources. Where it is possible to separate natural background from nonpoint sources, a description of the natural background must be provided, including the magnitude and location of the source(s). Such information is necessary for the EPA's review of the load and wasteload allocations, which is required by regulation. The TMDL submittal should also contain a description of any important assumptions made in developing the TMDL, such as: (1) the assumed distribution of land use in the watershed; (2) population characteristics, wildlife resources, and other relevant information affecting the characterization of the pollutant of concern and its allocation to sources; (3) present and future growth trends, if taken into consideration in preparing the TMDL; and (4) explanation and analytical basis for expressing the TMDL through surrogate measures, if applicable. Surrogate measures are parameters such as percent fines and turbidity for sediment impairments or Chla and phosphorus loadings for excess algae.

Eagle Lake was verified as impaired for nutrients based on the TSI values exceeding the threshold of 60, which is the threshold for a high-color lake, during the Cycle 1 verified period for the Group 3 basins (January 1, 1997–June 30, 2004). In the subsequent Cycle 2 assessment (January 1, 2002–June 30, 2009), Lake Ariana was verified as impaired for nutrients based on annual average TSI values exceeding 40, which is the applicable threshold for low-color lakes. Florida adopted new NNC for lakes, spring vents, and streams in 2011 that were approved by the EPA in 2014 and during the Cycle 3 assessment, the NNC were used to assess the lake during the verified period (January 1, 2008–June 30, 2015). Lake Ariana and Eagle Lake are now considered low color (<40 PCU) so alkalinity determines the Chl*a* AGM criterion. The AGMs for Chl*a* and TN exceeded their criteria more than once in a 3-year period in Lake Ariana, and the waterbody was added to the section 303(d) list for these parameters. Eagle Lake also exceeded its criteria for TP; thus, in addition to Chl*a* and TN, the lake was also added to the section 303(d) list for TP. Both lakes remain on the section 303(d) list.

There is one National Pollutant Discharge Elimination System (NPDES) permitted surface water discharger in the watersheds, Universal Forest Products, Auburndale LLC (Permit FL0133132). The facility uses a closed loop system and discharges do not occur normally, but in the event of a discharge, this consists of effluent as stormwater runoff in Lake Ariana. The facility is monitored regularly and there is no evidence of a discharge since 2004. The Lake Ariana and Eagle Lake watersheds are covered by a NPDES Municipal Separate Storm Sewer System (MS4) Phase I permit (FLS000015). The stormwater collection systems in these watersheds are owned and operated by Polk County, in conjunction witb the Florida Department of Transportation (FDOT) District 1. The cities of Auburndale, Eagle Lake, and Lakeland are co-permittees in the County's MS4 permit. Nonpoint sources addressed in the analysis primarily include loadings from surface runoff, groundwater seepage entering the lake, and precipitation directly onto the lake surface (atmospheric deposition).

For Lake Ariana, medium-density residential is the predominant anthropogenic land use in the watershed, accounting for 25% of the total area, followed by agriculture, which accounted for 16%. For

Eagle Lake, medium-density residential is the dominant anthropogenic land use type, accounting for 18% of total area, followed by agriculture, which accounts for 16%. Further discussion of sources for both lakes are included in chapter 4 of the report.

Assessment: The EPA concludes that the FDEP has adequately identified the impaired waterbodies, the pollutant of concern, and the magnitude and location of the pollutant sources.

2. Description of the Applicable WQS and Numeric Water Quality Target

The TMDL submittal must include a description of the applicable state WQS, including the designated use(s) of the waterbody, the applicable numeric or narrative water quality criterion, and the statewide antidegradation policy. Such information is necessary for the EPA's review of the load and wasteload allocations which is required by regulation. A numeric water quality target for the TMDL (a quantitative value used to measure whether or not the applicable WQS is attained) must be identified. If the TMDL is based on a target other than a numeric water quality criterion, then a numeric expression, usually site-specific, must be developed from a narrative criterion and a description of the process used to derive the target must be included in the submittal.

As described in WQS review sections I-1 and I-3, Lake Ariana and Eagle Lake are Class III (fresh) waterbodies. The nutrient TMDLs presented in the report will constitute the site-specific numeric interpretation of the NNC set forth in paragraph 62-302.530(48)(b), F.A.C., that will replace the otherwise applicable NNC in subsection 62-302.531(2), F.A.C., for these particular waterbodies, pursuant to paragraph 62-302.531(2)(a), F.A.C. As a low-color, high-alkalinity lake, Lake Ariana's Chl*a* target is 20 µg/L and as a low-color, low-alkalinity lake, Eagle Lake's Chl*a* target is 6 µg/L. Long-term datasets of color, alkalinity, and nutrients in these lakes suggest that they do not differ from the population of lakes used in the development of the NNC, and therefore the FDEP determined that the generally applicable NNC are the most appropriate site-specific Chl*a* criteria for these lakes.

The TN concentrations identified as the site-specific TN criterion were determined using the regression approach to achieve the applicable Chl*a* criteria (20 µg/L and for Lake Ariana and 6 µg/L for Eagle Lake), not to be exceeded more than once in any consecutive 3-year period. The site-specific interpretations of the NNC for TN are 0.97 mg/L for Lake Ariana and 0.63 mg/L for Eagle Lake, never to be exceeded.

There are no in-lake data available to suggest that an alternative TP criterion should be selected for these lakes, so the existing NNC was used as a starting point to determine the targets for TP. To maintain the current relationship of TN and TP and not result in degradation of the TP condition, the lower end of the range (0.03 mg/L for Lake Ariana and 0.01 mg/L for Eagle Lake) were used for the site-specific TP criterion.

The detailed process for developing the water quality target is explained in Chapters 3 and 5 of the report and is also summarized in section I-3 above.

Assessment: The EPA concludes that the FDEP has properly addressed its WQS when setting a numeric water quality target.

3. Loading Capacity - Linking Water Quality and Pollutant Sources

As described in the EPA guidance, a TMDL identifies the loading capacity of a waterbody for a particular pollutant. The EPA regulations define loading capacity as the greatest amount of loading that a water can receive without violating WQS (40 CFR section 130.2(f)). The loadings are required to be expressed as either mass-per-time, toxicity or other appropriate measure (40 CFR section 130.2(i)). The TMDL submittal must identify the waterbody's loading capacity for the applicable pollutant and describe the rationale for the method used to establish the cause-and-effect relationship between the numeric target and the identified pollutant sources. In most instances, this method will be a water quality model. Supporting documentation for the TMDL analysis must also be contained in the submittal, including the basis for assumptions, strengths and weaknesses in the analytical process, results from water quality modeling, etc. Such information is necessary for the EPA's review of the load and wasteload allocations which is required by regulation.

In many circumstances, a critical condition must be described and related to physical conditions in the waterbody as part of the analysis of loading capacity (40 CFR section 130.7(c)(1)). The critical condition can be thought of as the "worst case" scenario of environmental conditions in the waterbody in which the loading expressed in the TMDL for the pollutant of concern will continue to meet WQS. Critical conditions are the combination of environmental factors (e.g., flow, temperature, etc.) that results in attaining and maintaining the water quality criterion and has an acceptably low frequency of occurrence. Critical conditions are important because they describe the factors that combine to cause a violation of WQS and will help in identifying the actions that may have to be undertaken to meet WQS.

The method used for developing the nutrient TMDLs was a percent reduction approach where the percent reductions in the existing lake TN and TP concentrations were calculated to meet the nutrient water quality targets. As discussed in chapter 3 of the report, the NNC Chl*a* thresholds of 20 µg/L for Lake Ariana and 6 µg/L for Eagle Lake, expressed as AGMs not to he exceeded more than once every three years, were selected as the response variable target for TMDL development. The generally applicable NNC for TP in lakes consist of maximum and minimum values that are applied based on the Chl*a* criterion. The TP water quality targets are derived from the lower end of NNC values applicable for each lake type. This is done to maintain the current relationship of TN and TP and not result in degradation of the TP condition. For Lake Ariana, the TP target is 0.3 mg/L and for Eagle Lake, the target is 0.01 mg/L. The available data for Lake Ariana demonstrated that the lake was meeting the TP target every year, hut the TP values exceed the target NNC every year for Eagle Lake.

The TN water quality targets for the lakes were derived from the regression equations explaining the relationship between AGM Chl*a* concentrations and the TN and TP levels in the lakes. The TN target was the concentration necessary to meet the Chl*a* target of 20 µg/L for Lake Ariana and 6 µg/L for Eagle Lake in every year. More information can be found in section 5.4 of the report.

Because Lake Ariana was only impaired for TN and Chl*a* and hecause there was no clear relationship between TP and Chl*a*, a simple linear model relating Chl*a* concentrations to TN levels was used to derive the TN target. For Lake Ariana to achieve the target concentration of 0.97 mg/L of TN, a 36% reduction in the lake TN concentration is necessary. No reduction in the existing AGM for TP concentration is necessary to meet the target concentration of 0.03 mg/L. For Eagle Lake, where the generally applicable TP criteria was not being achieved and where Chl*a* levels were more strongly related to TP concentrations, a multiple regression model that related both TN and TP concentrations to Chl*a* concentrations was used to derive the TN targets. Eagle Lake's existing maximum TN concentration is 1.01 mg/L, which requires a 38% reduction to achieve the target TN concentration of 0.63 mg/L. The maximum TP concentration of 0.02 mg/L requires a 50% reduction to achieve the target TP concentration of 0.01 mg/L.

Achieving the TN and TP AGM targets is expected to result in the lakes meeting the Chl*a* targets of 20 µg/L for Lake Ariana and 6 µg/L for Eagle Lake. By achieving the specified nutrient targets, the lakes are expected to maintain their function and designated uses as Class III waters. Additionally, the required percent reductions in nutrient concentrations necessary to meet the nutrient targets will address the anthropogenic contributions to the water quality impairment.

Assessment: The EPA concludes that the loading capacity, having been calculated using the EPA-reviewed water quality models, and using observed concentration data and water quality targets consistent with numeric water quality criteria, has been appropriately set at a level necessary to attain and maintain the applicable WQS. The H1 is based on a reasonable approach for establishing the relationship between pollutant loading and water quality.

4. Load Allocation (LA)

The EPA regulations require that a TMDL include LAs, which identify the portion of the loading capacity allocated to existing and future nonpoint sources and to natural background (40 CFR section 130.2(g)). Load allocations may range from reasonably accurate estimates to gross allotments (40 CFR section 130.2(g)). Where it is possible to separate natural background from nonpoint sources, load allocations should be described separately for background and for nonpoint sources.

If the TMDL concludes that there are no nonpoint sources and/or natural background, or the TMDL recommends a zero load allocation, the LA must be expressed as zero. If the TMDL recommends a zero LA after considering all pollutant sources, there must be a discussion of the reasoning behind this decision, since a zero LA implies an allocation only to point sources will result in attainment of the applicable WQS, and all nonpoint and background sources will be removed.

To achieve the target lake concentrations for Lake Ariana, a 36% reduction in current TN concentrations is required. To achieve the target lake concentrations for Eagle Lake, a 38% and 50% reduction in current TN and TP concentrations, respectively, are required. The percent reductions represent the generally needed TN and TP reductions from all sources, including stormwater runoff, groundwater contributions, septic tanks, and internal sources. Although the TMDLs are based on the percent reductions from all sources to the lakes, it is not the FDEPs intent to abate natural conditions. The needed reduction from anthropogenic inputs will be calculated based on more detailed source information when a restoration plan is developed. The LA includes loading from stormwater dischargers regulated by the FDEP and the water management districts that are not part of the NPDES stormwater program (see Appendix A of the report).

Assessment: The EPA concludes that the LAs provided in the TMDL report are reasonable and will result in attainment of the WQS.

5. Wasteload Allocation (WLA)

The EPA regulations require that a TMDL include WLAs, which identify the portion of the loading capacity allocated to existing and future point sources (40 CFR section 130.2(h)). If no point sources are present or if the TMDL recommends a zero WLA for point sources, the WLA must be expressed as zero. If the TMDL recommends a zero WLA after considering all pollutant sources, there must be a discussion of the reasoning behind this decision, since a zero WLA implies an allocation only to nonpoint sources and background will result in attainment of the applicable WQS, and all point sources will be removed.

In preparing the WLAs, it is not necessary that each individual point source be assigned a portion of the allocation of pollutant loading capacity. When the source is a minor discharger of the pollutant of concern or if the source is contained

within an aggregated general permit, an aggregated WLA can be assigned to the group of facilities. However, it is necessary to allocate the loading capacity among individual point sources as necessary to meet the WQS.

The TMDL submittal should also discuss whether a point source is given a less stringent wasteload allocation based on an assumption that nonpoint source load reductions will occur. In such cases, the state will need to demonstrate reasonable assurance that the nonpoint source reductions will occur within a reasonable time.

One NPDES-permitted facility, Universal Forest Products, Auburndale LLC, is permitted for period discharges into the Lake Ariana watershed (Permit FL0133132). Nutrients are not discharged, and the discharges are infrequent because the facility maintains a closed loop system with reuse of treatment chemicals. Therefore, the WLA for wastewater discharge is not required for this facility.

The permittees/co-permittees in the Lake Ariana watershed are Polk County and the City of Auburndale, and in the Eagle Lake watershed they are Polk County and the City of Eagle Lake. Areas within their jurisdiction in the Lake Ariana watershed may be responsible for a 36% reduction in TN and a 0% reduction in TP from the current anthropogenic loading. In the Eagle Lake watershed, they may be responsible for a 38% reduction in TN and a 50% reduction in TP from the current anthropogenic loading.

It should be noted that any MS4 permittee is only responsible for the anthropogenic loads associated with stormwater outfalls that it owns or otherwise has responsible control over and is not responsible for reducing other nonpoint source loads in its jurisdiction.

Assessment: The EPA concludes that the WLAs provided in the report are reasonable and will result in the attainment of WQS. This is because the H1 accounts for all point sources discharging to impaired segments in the watershed and the WLAs require that TN and TP loads comply with the TMDL targets.

6. Margin of Safety (MOS)

The statute and regulations require that a TMDL include a margin of safety to account for any lack of knowledge concerning the relationship between load and wasteload allocations and water quality (CWA section 303(d)(1)(C), 40 CFR section 130.7(c)(1)). EPA 1991 guidance explains that the MOS may be implicit, i.e., incorporated into the TMDL through conservative assumptions in the analysis, or explicit, i.e., expressed in the TMDL as loadings set aside for the MOS. If the MOS is implicit, the conservative assumptions in the analysis that account for the MOS must be described. If the MOS is explicit, the loading set aside for the MOS must be identified.

An implicit MOS was used in the development of these TMDLs because of the conservative assumptions that were applied. The TMDLs were developed using the highest TN and TP AGM values to calculate the percent reductions and requiring the TMDL targets not to be exceeded in any one year. Additionally, the TN target of 0.97 mg/L in Lake Ariana results in Chl*a* concentrations less than the criterion of 20 µg/L. Similarly, the TN target of 0.63 mg/L in Eagle Lake in conjunction with its TP target results in a Chl*a* concentration less than 6 µg/L.

Assessment: The EPA concludes that the H1 incorporates an adequate margin of safety.

7. Seasonal Variation

The statute and regulations require that a TMDL be established with consideration of seasonal variations. The method chosen for including seasonal variations in the TMDL must be described (CWA section 303(d)(1)(C), 40 CFR section 130.7(c)(1)).

The water quality results applied in the analysis spanned the 1999-2016 period, which included both wet and dry years. The estimated assimilative capacity was based on annual conditions rather than on critical/seasonal conditions for three reasons: the methodology used to determine assimilative capacity for nutrients does not lend itself very well to short-term assessments; the FDEP was generally more concerned with the net change in overall primary productivity in the segments, which is better addressed on an annual basis; and the methodology used to determine impairment was based on annual conditions.

Assessment: The EPA concludes that seasonal variations were considered and that the H1 allocations ensure protection of WQS throughout all seasons.

8. Monitoring Plan to Track TMDL Effectiveness

EPA's 1991 document, Guidance for Water Quality-Based Decisions: The TMDL Process (EPA 440/4-91-001), recommends a monitoring plan to track the effectiveness of a TMDL, particularly when a TMDL involves both point and nonpoint sources, and the WLA is based on an assumption that nonpoint source load reductions will occur. Such a TMDL should provide assurances that nonpoint source controls will achieve expected load reductions, and such a TMDL should include a monitoring plan that describes the additional data to be collected to determine if the load reductions provided for in the TMDLs are occurring and leading to attainment of WQS.

Polk County and the FDEP conduct routine monitoring of Lake Ariana and Eagle Lake. Other sampling organizations (e.g., Southwest Florida Water Management District and Florida LakeWatch) have conducted monitoring intermittently for short periods. The report recommends that the current water quality and water level monitoring of Lake Ariana and Eagle Lake should continue and be expanded, as necessary, during the implementation phase to ensure that adequate information is available for tracking restoration progress. The data collected through these monitoring activities will be used to evaluate the effect of best management practices (BMPs) implemented in the watersheds on lake TN and TP loads in subsequent water quality assessment cycles.

Assessment: Although not a required element of the EPA's TMDL approval process, the FDEP indicated that stakeholders would be carrying out monitoring activities in Lake Ariana and Eagle Lake, which would help to gauge the progress toward attainment of WQS. The EPA is taking no action on the monitoring plan.

9. Implementation Plans

On August 8, 1997 Bob Perciasepe (EPA Assistant Administrator for the Office of Water) issued a memorandum, "New Policies for Establishing and Implementing Total Maximum Daily Loads (TMDLs)," that directs Regions to work in partnership with states to achieve nonpoint source load allocations established for 303(d)-listed waters impaired solely or primarily by nonpoint sources. To this end, the memorandum asks that Regions assist states in developing implementation plans that include reasonable assurances that the nonpoint source load allocations established in the TMDLs for waters impaired solely or primarily by nonpoint sources will in fact be achieved. The memorandum also includes a discussion of renewed focus on the public participation process and recognition of other relevant watershed management processes used in the TMDL process. Although implementation plans are not approved by the EPA, they help establish the basis for the EPA's approval of the TMDL.

As specified in the report, Florida implements statewide regulations to address the issue of nonpoint source pollution by requiring new development and redevelopment to treat stormwater before it is discharged. The stormwater treatment requirements are integrated with other stormwater flood control requirements of the water management districts. The State's water management districts are also required (Chapter 62-40, F.A.C.) to establish stormwater Pollution Load Reduction Goals (PLRGs) and adopt them as part of a Surface Water Improvement and Management plan, other watershed plan, or rule.

A draft water quality management plan has been developed for Eagle Lake by Polk County in partnership with Amec Foster Wheeler Environment and Infrastructure, Inc. In addition to an analysis of the current status of Eagle Lake, the plan also provides recommendations for future management practices and stormwater improvements to begin restoration of the lake.

Assessment: Although not a required element of the TMDL approval, the FDEP discussed how information derived from the TMDL analysis process will be used to develop and implement BMPs that support implementation of the TMDL. The EPA is taking no action on the implementation portion of the submission.

10. Reasonable Assurances

EPA guidance calls for reasonable assurances when the TMDL is developed for waters impaired by both point and nonpoint sources. In a water impaired by both point and nonpoint sources, where a point source is given a less stringent wasteload allocation based on an assumption that nonpoint source load reductions will occur, reasonable assurance that the nonpoint source reductions will happen must be explained in order for the TMDL to be approvable. This information is necessary for the EPA to determine that the load and wasteload allocations will achieve WQS.

In a waterbody impaired solely by nonpoint sources, reasonable assurances that load reductions will be achieved are not required in order for a TMDL to be approvable. However, for such nonpoint source-only waters, states are strongly encouraged to provide reasonable assurances regarding achievement of load allocations in the implementation plans described in section 9, above. As described in the August 8, 1997 Perciasepe memorandum, such reasonable assurances should be included in state implementation plans and "may be non-regulatory, regulatory, or incentive-based, consistent with applicable laws and programs."

A study conducted by Polk County to provide the final list of TMDLs and prioritization factor related activities for several impaired lakes including Ariana and Eagle Lakes recommended that the County develop and implement a water quality management plan with potential water quality improvement projects. As stated in section II-9 of this document, a draft water quality management plan has already been developed for Eagle Lake by Polk County in partnership with Amec Foster Wheeler Environment and Infrastructure, Inc. A variety of nutrient source tracking, structural, non-structural and source control BMPs and other management activities that can be carried out in the Eagle Lake surface and ground watersheds to improve water quality and ecological conditions in the lake have been identified.

Assessment: The EPA considered the reasonable assurances contained in the report. Point sources are required to comply with their NPDES permits, which must include tbe requirements and assumptions of the report. Reductions for nonpoint sources are expected to occur as a result of the incentive and voluntary programs that were already in place or will be developed with active participation of its stakeholders.

11. Public Participation

EPA policy is that there must be full and meaningful public participation in the TMDL development process. Each state must, therefore, provide for public participation consistent with its own continuing planning process and public participation requirements (40 CFR section 130.7(c)(1)(ii)). In guidance, the EPA has explained that the final TMDL submitted to the EPA for review and approval must describe the state's public participation process, including a summary of significant comments and the state's responses to those comments. When the EPA establishes a TMDL, EPA regulations require the EPA to publish a notice seeking public comment (40 CFR section 130.7(d)(2)).

Inadequate public participation could be a basis for disapproving a TMDL; however, where the EPA determines that a state has not provided adequate public participation, the EPA may defer its approval action until adequate public participation has been provided for, either by the state or by the EPA.

The FDEP published a Notice of Development of Rulemaking on February 21, 2018, to initiate TMDL development for impaired waters in the Peace River Basin. A Technical Public Meeting to present the general TMDL approach for Lake Ariana and Eagle Lake was held on November 8, 2017. A rule development public workshop for the TMDLs was held on March 6, 2018, in Bartow, Florida which was advertised in the local newspaper, The Ledger and News Chief of Polk County and a 30-day public comment period was provided to the stakeholders. Public comments were received for the TMDLs and the FDEP prepared a responsiveness summary for the comments. The workshop notice indicated that the nutrient TMDLs, if adopted, constitute site-specific numeric interpretations of the narrative criterion set forth in paragraph 62-302.530(48)(b), F.A.C., that would replace the otherwise applicable NNC in subsection 62-302.531(2), F.A.C., for these waters. The FDEP also held a public hearing on June 29, 2018, in Tallahassee, Florida.

Assessment: The EPA concludes that the State involved the public during the development of the H1, provided adequate opportunities for the public to comment on the report, and provided reasonable responses to the comments received.

12. Submittal Letter

A submittal letter should be included with the TMDL analytical document and should specify whether the TMDL is being submitted for a technical review or is a final submittal. Each final TMDL submitted to the EPA must be accompanied by a submittal letter that explicitly states that the submittal is o final TMDL submitted under section 303(d) of the CWA for EPA review and approval. This clearly establishes the state's intent to submit, and the EPA's duty to review, the TMDL under the statute. The submittal letter, whether for technical review or final submittal, should contain such information as the name and location of the waterbody and the pollutant(s) of concern.

Assessment: Accompanying the State's (October 2018) final TMDLs for nutrients was a submittal letter dated October 9, 2018, from Robert A. Williams General Counsel, the FDEP, requesting the review and approval of the nutrient TMDLs for: Lake Tallavana, Lake Hollingsworth, Lake Haines, Lake Rochelle, Lake Conine, Lake Alfred, Lake Blue, Lake Marianna, Lake Ariana, and Eagle Lake.

III. Conclusion

The EPA Region 4 Water Protection Division Director is **APPROVING** the H1 NNC and TMDLs addressed by this decision document in accordance with sections 303(c) and 303(d) of the CWA, as consistent with the CWA and 40 CFR parts 131 and 130, respectively.

The H1 NNC presented in this decision document will constitute the site-specific numeric interpretation of the narrative nutrient criterion set forth in paragraph 62-302.530(48)(b), F.A.C., that will replace the otherwise applicable numeric criteria for TN and TP in subsection 62-302.531(2) for these particular waters, pursuant to paragraph 62-302.531(2)(a)1.b., F.A.C. Based on the chemical, physical, and biological data presented in the development of the H1 NNC outlined above, the EPA concludes that the revised NNC for TN and TP provide for and protect healthy, well-balanced, biological communities in the waters to which the NNC apply and are consistent with the CWA and its implementing regulations at 40 CFR 131.11.

Therefore, the Lake Ariana (WBID 1501B) site-specific criteria for TN is 0.97 mg/L and TP is 0.03 mg/L, both expressed as an AGM not to be exceeded in any year. The TMDL allocation for WBID 1501B is expressed as a percent reduction of 36% for TN and 0% for TP.

The Eagle Lake (WBID 1623M) site-specific criteria for TN is 0.63 mg/L and TP is 0.01 mg/L, both expressed as an AGM not to be exceeded in any year. The TMDL allocation for WBID 1521Q is expressed as a percent reduction of 38% for TN and 50% for TP.

All other criteria applicable to these waterbodies remain in effect, including other applicable criteria at 62-302.531(2)(b), F.A.C. The requirements of paragraph 62-302.530(48)(a), F.A.C. also remain applicable.

Furthermore, after a full and complete review, the EPA finds that the H1 for Lake Ariana (WBID 1501B), and Eagle Lake (WBID 1623M)/ Peace River Basin for TN and TP satisfies all of the elements of approvable TMDLs. This approval is for the *Nutrient TMDLs for Lake Ariana (WBID 1501B) and Eagle Lake (WBID 1623M) and Documentation in Support of the Development of Site-Specific Numeric Interpretations of the Narrative Criterion*, addressing two waterbodies for use impairments due to nutrients based on elevated TN and/or TP.